

MVX 44 VGA A

4x4 VGA and Stereo Audio Matrix Switcher

Key Features

- Ultra-wideband performance - 350 MHz to 500 MHz (-3 dB), depending on model
- Triple Action Switching™ for RGB delay
- Audio input gain and attenuation
- Switchable audio output levels
- Optional IR 501 handheld remote control



Model	Version Description	Part #
MVX 44 VGA A	4x4 VGA and Stereo Audio	60-635-21

DESCRIPTION

The MVX 44 VGA A is designed to route high resolution computer-video and stereo audio signals. Convenient 15-pin HD connectors are used for all computer-video input and output connections. Unbalanced stereo audio is input on 3.5 mm stereo mini jacks, while balanced or unbalanced stereo audio is output on captive screw connectors. Using pre-terminated cable assemblies, such as Extron's VGA with Audio Cables, eliminates crimping and makes installations faster and easier.

In addition, the MVX 44 VGA A comes standard with the QS-FPC™ - QuickSwitch Front Panel Controller, which allows for touch-of-a-button input and output selection directly from the front panel. It can also be controlled through RS-232 serial control utilizing Extron's SIS™ - Simple Instruction Set commands, the optional Extron IR 501 remote control, the optional Extron MKP 2000 or MKP 3000 X-Y remote control panels, or via a third party control system.

Features

- **Inputs: VGA on female 15-pin HD connectors; audio on 3.5 mm stereo mini jacks**
- **Outputs: Video on female 15-pin HD connectors; audio on captive screw connectors**
- **Ultra-wideband performance - 350 MHz to 500 MHz (-3 dB), depending on model** — MVX Series models in I/O sizes from 4x4 to 12x8 provide a minimum of 350 MHz (-3 dB) RGB video bandwidth, fully loaded. Larger sizes, from 12x12 to 16x16, provide a minimum of 500 MHz (-3 dB) at full performance capability, when one input drives all outputs.
- **Triple Action Switching™ for RGB delay** — RGB delay blanks the screen when the matrix switcher switches to a new source. The new sync signals precede the RGB signals, so there is no glitch during the transition.
- **Switches both balanced and unbalanced stereo audio** — Output on captive screw connectors.
- **Audio input gain and attenuation** — Allows users to set the level of gain or attenuation for each audio input channel, eliminating noticeable volume differences when switching between sources.
- **Switchable audio output levels** — Output levels can be switched between +4 dBu professional and -10 dBv consumer levels, allowing a mix of professional and consumer-level audio equipment.
- **Optional IR 501 handheld remote control**
- **Audio breakaway** — Provides the capability to break an audio signal away from its corresponding video signal, allowing the audio and video signals from one source to be switched to different destinations.
- **View I/O mode** — Easily view which inputs and outputs are actively connected.
- **QS-FPC™ - QuickSwitch Front Panel Controller** — Provides a discrete button for each input and output, allowing for simple, intuitive operation.
- **Global presets** — Frequently-used I/O configurations may be saved and recalled from the front panel or via serial control. This time-saving feature allows you to set up I/O configurations and store them in memory for future use.
- **Front panel security lockout** — Prevents unauthorized use when the matrix switcher is installed in an unsecured environment where easy access is not desirable. In lock-out mode, a special button combination is required to operate the front panel.
- **RS-232 control port** — Using RS-232 serial commands, the MVX Series can be controlled and configured via the Extron Windows®-based control program, or integrated into a control system. Extron products use the SIS - Simple

Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming. The serial port also makes it easy to install firmware updates.

- **Control software** — Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 remote control. This software also offers an emulation mode for configuration of an offsite matrix switcher; the I/O configuration may be saved for future downloading to the matrix switcher.
- **Optional control panels and keypads** — Optional X/Y control panels, bus control panels, and keypads provide the flexibility to control an MVX Series matrix switcher from a remote location.
- **1U, rack-mountable metal enclosure**
- **Internal universal power supply** — The 100-240 VAC, 50/60 Hz, international power supply provides worldwide power compatibility.

OPTIONAL ACCESSORIES

- SYM BNCF

15-pin HD Male to BNC Female Mini High Resolution Cables

SPECIFICATIONS

MVX VGA A Series

Video

Routing

MVX 44 VGA A	4 x 4 matrix
MVX 48 VGA A	4 x 8 matrix
MVX 84 VGA A	8 x 4 matrix
MVX 88 VGA A	8 x 8 matrix
MVX 128 VGA A	12 x 8 matrix
MVX 1212 VGA A	12 x 12 matrix
MVX 168 VGA A	16 x 8 matrix
MVX 1616 VGA A	16 x 16 matrix

Gain

Unity

Bandwidth

44-128 models	350 MHz (-3 dB), fully loaded
1212-1616 models	500 MHz (-3 dB), fully loaded
0 - 10 MHz	No more than +0.14 dB to -0.1 dB
0 - 130 MHz	No more than +0.95 dB to -0.8 dB

Crosstalk

44-88 models	< -60 dB nominal @ 10 MHz, < -39 dB @ 100 MHz
128 model	-80 dB @ 1 MHz, -55 dB @ 10 MHz, -37 dB @ 100 MHz
1212/168/1616 Series	-90 dB @ 1 MHz, 78 dB @ 5 MHz, -70 dB @ 10 MHz, -60dB @ 30 MHz, -52 dB @ 100 MHz

Switching speed

44-88 models	20 ms (max.)
128-1616 models	200 ns (max.)

Video input

Number/signal type	VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video (bi-level and tri-level sync), S-video, composite video
44/48 models	4
84/88 models	8
128/1212 models	12
168/1616 models	16
Connectors	
44/48 models	4 female 15-pin HD
84/88 models	8 female 15-pin HD
128/1212 Series	12 female 15-pin HD
168/1616 Series	16 female 15-pin HD
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	
44-128 models	Analog: 0.3 V to 2.0 Vp-p with no offset at unity gain
1212-1616 models	Analog: 0.5 V to 2.0 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz
Return loss	< -40 dB @ 5 MHz
DC offset (max. allowable)	

44-128 models	1.5 V
1212-1616 models	±1.4 mV

Video output

Number/signal type	VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video (bi-level and tri-level sync), S-video, composite video
44/84 models	4
48/88/128/168 models	8
1212 model	12
1616 model	16
Connectors	
44/84 models	4 female 15-pin HD
48/88/128/168 models	8 female 15-pin HD
1212 model	12 female 15-pin HD
1616 model	16 female 15-pin HD
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	
44-128 models	0.3 V to 2.0 Vp-p (follows input)
1212-1616 models	0 V to 2.0 Vp-p (follows input)
Impedance	75 ohms
Return loss	< -40 dB @ 5 MHz
DC offset (max. allowable)	
44-88 models	<20 mV with input at 0 offset
128 model	±5 mV with input at 0 offset
1212-1616 models	±10 mV with input at 0 offset
Switching type	Triple-Action™

Sync

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Standards	Computer scan rates and also NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	0.5 V to 5.0 Vp-p
Output level	AGC to TTL: 4.0 V to 5.0 Vp-p, unterminated
Input impedance	510 ohms
Output impedance	
44-128 models	75 ohms
1212-1616 models	Inputs 1 to 8: 75 or 50 ohms, switchable Inputs 9 to 12 or 16: 75 ohms
Max. propagation delay	
44-88 models	Horizontal: 90 ns nominal Vertical: 160 ns nominal
128 model	30 ns nominal
1212-1616 models	<120 ns
Max. rise/fall time	
44-128 models	4 ns
1212-1616 models	11.5 ns
Polarity	Positive or negative (follows input)

Audio

Routing	
MVX 44 VGA A	4 x 4 stereo matrix
MVX 48 VGA A	4 x 8 stereo matrix
MVX 84 VGA A	8 x 4 stereo matrix
MVX 88 VGA A	8 x 8 stereo matrix
MVX 128 VGA A	12 x 8 stereo matrix
MVX 1212 VGA A	12 x 12 stereo matrix
MVX 168 VGA A	16 x 8 stereo matrix
MVX 1616 VGA A	16 x 16 stereo matrix

Gain	
44-88 models	Adjustable

NOTE At default (when input gain is set to 0 dB and output level is set to "Pro"), overall gain is 12 dB for balanced output. The gain range is -6 dB to +22 dB for balanced output when the output level is set to "Pro".

128-1616 models	Unbalanced output: -6 dB Balanced output: 0 dB
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Frequency response

44-128 models	20 Hz to 20 kHz, ± 0.2 dB
1212-1616 models	20 Hz to 20 kHz, ± 0.05 dB
THD + Noise	
44-128 models	0.05% @ 1 kHz, 0.3 % @ 20 kHz at nominal level
1212-1616 models	0.03% @ 1 kHz at nominal level
S/N	
44-128 models	>90 dB, balanced, at maximum output (unweighted)
1212-1616 models	>100 dB, balanced, at maximum output (21 dBu) (unweighted)
Crosstalk	
44-128 models	< -65 dB @ 20 kHz, < -80 dB @ 1 kHz (fully loaded) or below 60 Hz
1212-1616 models	< -90 dB @ 1 kHz, fully loaded
Stereo channel separation	
44-128 models	>80 dB @ 1 kHz, >55 dB @ 20 Hz to 20 kHz (average for range)
1212-1616 models	>103 dB @ 1 kHz
CMRR	
44-128 models	>75 dB @ 20 Hz to 20 kHz
1212-1616 models	>85 dB @ 20 Hz to 20 kHz

Audio input

Number/signal type	
44/48 models	4 stereo, unbalanced
84/88 models	8 stereo, unbalanced
128/1212 models	12 stereo, balanced/unbalanced
168/1616 models	16 stereo, balanced/unbalanced
Connectors	
44/48 models	4 female 3.5 mm stereo mini jacks: tip (L), ring (R), sleeve (GND)
84/88 models	8 female 3.5 mm stereo mini jacks: tip (L), ring (R), sleeve (GND)
128/1212 models	(12) 3.5 mm captive screw connectors, 5 pole
168/1616 models	(16) 3.5 mm captive screw connectors, 5 pole
Impedance	
44-88 models	>18k ohms unbalanced, DC coupled
128-1616 models	>10k ohms unbalanced/balanced, DC coupled
Nominal level	
44-88 models	-10 dBV (316 mV) (default) Also compatible with +4 dBu (1.23 V), 0 dBu (0.775V), -20 dBV (100 mV)
128-1616 models	-10 dBV (316 mVrms), 0 dBu (775 mV)
Maximum level	
44-88 models	>+12 dBV (4 V), (unbalanced) at 1% THD+N
128-1616 models	+19.5 dBu, (balanced or unbalanced) at 0.01% THD+N
Input gain	
44-88 models	-18 dB to +10 dB, default = 0 dB Adjustable per input.

NOTE This is referenced to the internal bus signal level. It can be verified by measuring the unbalanced output when the output level is set to "Consumer".

128-1616 models -18 dB to +24 dB (default = 0 dB)
Adjustable per input by RS-232/422 or front panel

NOTE 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Audio output

Output gain	44-128 models only: 0 dB unbalanced (consumer) or +12 dB balanced (pro), selectable Default = +12 dB, balanced, when output level is set to "Pro"
Number/signal type	
44/84 models	4 stereo, balanced/unbalanced
88/128/168 models	8 stereo, balanced/unbalanced
1212 model	12 stereo, balanced/unbalanced
1616 model	16 stereo, balanced/unbalanced
Connectors	
44/84 models	(4) 3.5 mm captive screw connectors, 5 pole
48/88/128/168 models	(8) 3.5 mm captive screw connectors, 5 pole
1212 model	(12) 3.5 mm captive screw connectors, 5 pole
1616 model	(16) 3.5 mm captive screw connectors, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	± 0.1 dB channel to channel
Nominal level (output volume range)	
44-88 models	+4 dBu (1.23 V) (default) balanced, or -10 dBV (316 mV) unbalanced

128-1616 models	0 to 64 (-75.8 dB to 0 dB) Adjustable in 1 dB increments from steps 1 to 64, 12 dB increment from step 0 to 1; default = 64 = 0 dB
Maximum level (Hi-Z)	
44-88 models	>+22 dBu, balanced; >+14 dBV, unbalanced at 1% THD+N
128-1616 models	>+21 dBu, balanced or unbalanced, at 0.1% THD+N
Maximum level (600 ohm)	
44-88 models	>+20 dBu, balanced; >+12 dBV unbalanced at 1% THD+N at default settings
128-1616 models	>+15 dBm, balanced or unbalanced, at 0.1% THD+N at default settings

Control/remote — switcher

Serial control port	
44-88 models	1 RS-232, 9-pin female D connector
128 model	1 RS-232 or RS-422, female 9-pin D connector
1212-1616 models	1 bidirectional RS-232 or RS-422, rear panel female 9-pin D connector 1 bidirectional RS-232, front panel 2.5 mm mini stereo jack
Baud rate and protocol	
44-88 models	9600 baud, 8 data bits, 1 stop bit, no parity
128-1616 models	9600 (default), 19200, 38400, 115200 baud (adjustable); 8 data bits, 1 stop bit, no parity
Control pin configurations	
44-88 models	2 = TX, 3 = RX, 5 = GND, 9 = hardwired IR input
128 model	
RS-232	2 = TX, 3 = RX, 5 = GND
RS-422	2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
1212-1616 models	
RS-232	9-pin female D connector: 2 = TX, 3 = RX, 5 = GND Mini stereo jack: tip = TX, ring = RX, sleeve = GND
RS-422	9-pin female D connector: 2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
IR controller module	
44-88 models	IR 501 (optional)
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)

General

Power	100 VAC to 240 VAC, 50-60 Hz, internal
44-128 models	30 watts
1212-1616 models	48 watts
Temperature/humidity	
44-128 models	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
1212-1616 models	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +113 °F (0 to +45 °C) / 10% to 90%, noncondensing
Cooling	
44-88 models	Convection, vents on sides and top
128-1616 models	Convection, vents on right and left sides
Mounting	
44-128 models	
Rack mount	Yes, with included mounting kit
Furniture mount	Yes, with optional under-desk mounting kit
1212-1616 models	
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions	
44-88 models	1.75" H x 17.4" W x 8.5" D (1U high, full rack wide) (4.4 cm H x 44.2 cm W x 21.6 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
128 model	3.5" H x 17.0" W x 9.4" D (2U high, full rack wide) (8.9 cm H x 43.2 cm W x 23.9 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
1212-1616 models	5.25" H x 17.0" W x 9.4" D (3U high, full rack wide) (13.3. cm H x 43.2. cm W x 23.9. cm D) (Depth excludes connectors. Width excludes rack ears.)
Product weight	
44-88 models	7.0 lbs (3.2 kg)
128 model	9.4 lbs (4.3 kg)
1212-1616 models	14.4 lbs (6.5 kg)
Shipping weight	
44-88 models	10 lbs (5 kg)

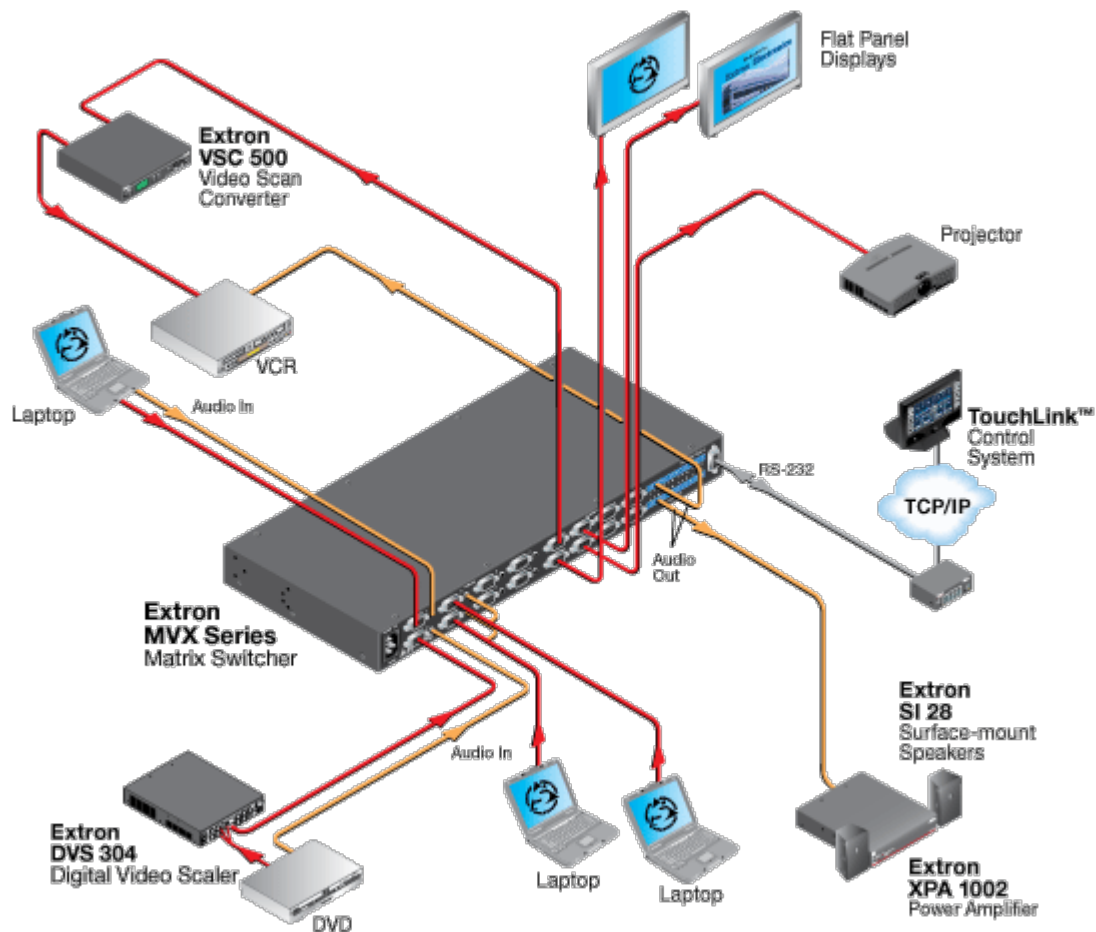
128 model	15 lbs (7 kg)
1212-1616 models	21 lbs (10 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

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DIAGRAM



PANEL DRAWING

